In the claims:

Claims 1-2 (Canceled)

Claims 3-7 (Withdrawn)

Claim 8 (Canceled)

Claims 9-10 (Withdrawn)

Claim 11 (New): A method for determining the presence or absence of a single nucleotide polymorphism (SNP) in a pyruvate dehydrogenase complex E1α (PDH E1α) gene, the method comprising:

(a) providing a nucleic acid sample from a human identified as having or at risk for having a PDH-mediated disease, wherein the sample comprises a nucleotide at a position corresponding to position 1388 of SEQ ID NO:2; and

(b) testing the sample to determine the identity of the nucleotide.

Claim 12 (New): The method of claim 1, further comprising:

(c) determining that the nucleotide at position 1388 of SEQ ID NO:2 is a T.

Claim 13 (New): The method of claim 1, further comprising:

(c) determining that the nucleotide at position 1388 of SEQ ID NO:2 is not a C.

Claim 14 (New): The method of claim 11, further comprising determining the identity of a second nucleotide, the second nucleotide being at a position corresponding to position 26 of SEQ ID NO:1.

Claim 15 (New): The method of claim 11, further comprising determining the identity of a second nucleotide, the second nucleotide being at a position corresponding to position 161 of SEQ ID NO:1.

Claim 16 (New): The method of claim 14, further comprising determining the identity of a third nucleotide, the third nucleotide being at a position corresponding to position 161 of SEQ ID NO:1.

Claim 17 (New): A method comprising:

(a) providing a nucleic acid sample from a human having or at risk for having a PDH-mediated disease, wherein the sample comprises a nucleotide at a position corresponding to position 1388 of SEQ ID NO:2;

(b) testing the sample to determine the identity of the nucleotide;

(c) treating the human with an agent that is effective in treating the PDH-mediated disease in some patients;

(d) determining whether the agent has a therapeutic effect on the human; and

(e) correlating (i) the therapeutic effect, or lack of therapeutic effect, on the human, with (ii) the identity of the nucleotide.

Claim 18 (New): The method of claim 17, further comprising determining the identity of a second nucleotide, the second nucleotide being at a position corresponding to position 26 of SEQ ID NO:1.

Claim 19 (New): The method of claim 17, further comprising determining the identity of a second nucleotide, the second nucleotide being at a position corresponding to position 161 of SEQ ID NO:1.

Claim 20 (New): The method of claim 18, further comprising determining the identity of a third nucleotide, the third nucleotide being at a position corresponding to position 161 of SEQ ID NO:1.

Claim 21 (New): The method of claim 11, wherein the identity of the nucleotide is determined by using a method selected from the group consisting of the ARMS™ or ALEX™ assay, COPS, Taqman™, Molecular Beacons, RFLP, or a restriction site based PCR or FRET technique.

Claim 22 (New): The method of claim 17, wherein the identity of the nucleotide is determined by using a method selected from the group consisting of the ARMS™ or ALEX™ assay, COPS, Taqman™, Molecular Beacons, RFLP, or a restriction site based PCR or FRET technique.